

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Alok Dev

Title of Invention : SILICON CARBIDE SCHOTTKY BARRIER DIODE
AND METHOD OF MAKING

Filed : June 28, 2001

Serial No. : 09/694,657

Examiner: : FOURSON III, George R.

Group Art Unit : 2823

Attorney Ref : US010292

Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SIR:

REMARKS

This is responsive to the final Office Action dated December 31, 2003, in which the Examiner holds his rejections to all the pending claims 1-8 and 18 as being obvious over the combinations of Lillienfeld, et al (U.S. Patent No. 5,087,322), Baliga, et al. (U.S. Patent No. 5,635,412), Chen, et al. (U.S. Patent No. 4,679,303), T.R. Cox, et al. (U.S. Patent No. 3,567,508) and Thero, et al. (U.S. Patent No. 5,612,232) under 35 U.S.C. §103(a). The applicant respectfully traverses the rejections as explained in detail below.

In particular, the applicant respectively disagrees with the assertion of the Examiner that the present invention as defined in independent claims 1 and 18 is obvious over combinations of Lillienfeld, Baliga, Cox and Chen. More specifically, the applicant believes that the distinguishing feature of "implanting an edge termination layer into the wafer beneath the

surface of the insulating layer but not beneath the conductive material” recited in claims 1 and 18 cannot be concluded from combinations of the cited patents. In Baliga, the edge termination region 16 is implanted directly below the surface of the substrate 11, but not beneath an insulating layer (as clearly shown in Figure 1C, also see col. 4, lines 29-32). None of other cited patents (Lillienfeld, Cox and Chen) has disclosed or mentioned an edge termination layer. It is noted that the implant in Chen is a deep p+ dopant implant for forming a channel stop 40 of a MOSFET (see col. 4, lines 51-60 and Figure 6), and is not an edge termination layer and has nothing to do with an edge termination layer in a Schottky barrier diode as disclosed in the present invention, which is formed by implantation of an inert ion, preferably argon ions. Besides, the applicant has also noted that in the Office Action, the Examiner does not rely on Chen for a teaching of the edge termination layer. Therefore, the applicant submits that a combination of the cited patents cannot conclude the distinguishing feature of “implanting an edge termination layer ... beneath the surface of the insulating layer”, as defined in independent claims 1 and 18. Claims 1 and 18 are therefore believed not obvious over the combinations of the cited patents under 35 U.S.C. §103(a), and are thus patentable.

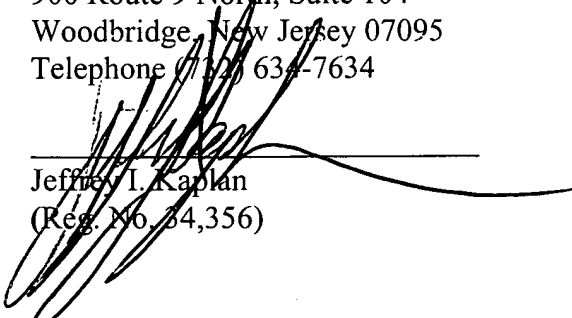
At least for the same reasons, dependent claims 2-8 are also believed patentable, as each of them includes all the limitations in claim 1.

Therefore, reconsideration with a view towards allowance is respectfully requested in view of the above remarks. The examiner is authorized to charge any shortages or credit any overpayments to our deposit account number 11-0223.

Respectfully submitted,

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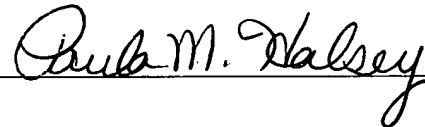
Dated: March 9, 2004



Jeffrey I. Kaplan
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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal service as first class mail, in a postage prepaid envelope, addressed to Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on March 9, 2004.

Dated March 9, 2004 Signed  Print Name Paula M. Halsey